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SEQUENCE LISTING

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<170> PatentIn version 3.1

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gac ctc agc atg aac aac ctc aca gag ctt cag cct ggc ctc ttc cac	151					
Asp Leu Ser Met Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu Phe His						
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His Leu Arg Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn His Leu Ser						
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His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu Lys Ile Leu						
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Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn Leu Ile Ser						
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Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu Arg His Leu						
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Asn	Leu	Pro	Ala	Leu	Gln	Ala	Met	Thr	Leu	Ala	Leu	Asn	Arg	Ile	Ser		
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His	Ile	Pro	Asp	Tyr	Ala	Phe	Gln	Asn	Leu	Thr	Ser	Leu	Val	Val	Leu		
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Glu	Phe	Pro	Val	Ala	Ile	Arg	Thr	Leu	Gly	Arg	Leu	Gln	Glu	Leu	Gly		
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Phe	His	Asn	Asn	Asn	Ile	Lys	Ala	Ile	Pro	Glu	Lys	Ala	Phe	Met	Gly		
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Thr	Ser	Leu	Glu	Ile	Leu	Thr	Leu	Thr	Arg	Ala	Gly	Ile	Arg	Leu	Leu		
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gct gga ctt ggg ggc ttg atg cat ctg aag ctc aaa ggg aac ctt gct Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn Leu Ala 390 395 400	1255
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Arg	Leu	Arg	Pro	Arg	Ala	Gly	Asp	Ser	Gly	Pro	Leu	Ala	Tyr	Ala	Ala	
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gcc	ggg	gag	ctg	gag	aag	agc	tcc	tgt	gat	tct	acc	cag	gcc	ctg	gta	2503
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ccc cct ggg ctg gag acc tat ggc ttc ccc tca gtg acc ctc atc tcc      2599
Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser
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tgt cag cag cca ggg gcc ccc agg ctg gag ggc agc cat tgt gta gag      2647
Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu
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cca gag ggg aac cac ttt ggg aac ccc caa ccc tcc atg gat gga gaa      2695
Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu
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ggg ggt ggc ggc ttt cag ccc tct ggc ttg gcc ttt gct tca cac gtg      2791
Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val
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tggcccagtc cctggctcca ctgatcacct ctctcctgtg accatcacca acgggtgcct      2971

cttggcctgg ctttcccttg gccttcctca gcttcacctt gatactgggc ctcttccttg      3031

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gagaaaggcc tggaaggtga tttcccgtgt gactcatgga taggatacaa aatgtgttcc      3211

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 His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu
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 Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu
 65 70 75 80
 Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn
 85 90 95
 Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu
 100 105 110
 Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg
 115 120 125
 Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn
 130 135 140
 Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu
 145 150 155 160
 Val Val Leu His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His
 165 170 175
 Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn
 180 185 190
 Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln
 195 200 205
 Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala
 210 215 220
 Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro
 225 230 235 240
 Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His
 245 250 255
 Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu

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Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val 290 295 300		
Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg 305 310 315 320		
Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu 325 330 335		
Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp 340 345 350		
Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr 355 360 365		
Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr 370 375 380		
Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly 385 390 395 400		
Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu 405 410 415		
Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met 420 425 430		
Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu 435 440 445		
His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala 450 455 460		
Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu 465 470 475 480		
Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr 485 490 495		

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Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile
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 515 520 525

Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Val Pro Leu Pro Pro
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Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly
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Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln
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Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala
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Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu
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Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala
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Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly
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Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val
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Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu
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 675 680 685

Ser Phe Cys Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys
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Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val
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Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro

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Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala		
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Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp		
770	775	780
Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala		
785	790	795
Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln		
805	810	815
Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu		
820	825	830
Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr		
835	840	845
Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His		
850	855	860
Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met		
865	870	875
Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly		
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Ser His Val		
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His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu
 30 35 40 45

Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu
 50 55 60

Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn
 65 70 75

Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu
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Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg
 95 100 105

Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn
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Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu
 130 135 140

Val Val Leu His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His
 145 150 155

Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn
 160 165 170

Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln
 175 180 185

Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala

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190	195	200	205
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Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His	225	230	235
Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu	240	245	250
Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile	255	260	265
Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val	270	275	280
Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg	290	295	300
Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu	305	310	315
Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp	320	325	330
Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr	335	340	345
Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr	350	355	360
Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly	370	375	380
Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu	385	390	395
Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met	400	405	410
Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu	415	420	425

- 12 -

His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala
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Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu
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Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr
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Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile
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Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly
 495 500 505

Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Val Pro Leu Pro Pro
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Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly
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Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val
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Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu
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Gly Gln Pro Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn

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655	660	665
Ser Phe Cys Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys		
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Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val		
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Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro		
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Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr		
	720	725 730
Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala		
	735	740 745
Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp		
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Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala		
	770	775 780
Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln		
	785	790 795
Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu		
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Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr		
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Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His		
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Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met		
	850	855 860
Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly		
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Asp Leu Ser Met Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu Phe His
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His Leu Arg Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn His Leu Ser
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His Ile Pro Gly Gln Ala Phe Ser Gly Leu Tyr Ser Leu Lys Ile Leu
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Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu Ala Leu Trp
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Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn Leu Ile Ser
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Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu Arg His Leu
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Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg Ala Leu Asn
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Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn Arg Ile Ser
135 140 145

cac atc ccc gac tac gcg ttc cag aat ctc acc agc ctt gtg gtg ctg 535
His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu Val Val Leu

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His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His Ser Phe Glu			
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Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Lys Leu Gln			
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Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly			
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Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly			
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aac cct ctg cta cag acg ata cac ctt tat gat aac cca atc cag ttt			775
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Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser			
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Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu			
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Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys			
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Val Val Leu His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His
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Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn
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Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln
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Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala
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Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Leu Tyr Asp Asn Pro
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Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His
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Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val
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Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg
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Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly Ile Pro Ala Glu
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Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn
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Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu
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Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg
 95 100 105

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Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu
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Val Val Leu His Leu His Asn Asn Arg Ile Gln His Leu Gly Thr His
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Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn
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Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln
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Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg
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Cys Gln Lys Leu Glu Glu Met Arg Ser Gly Gly Leu Tyr Phe Leu Pro
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Pro Ser Ala Arg Gly Ala Trp Ser Gly Ala Arg Val
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